AMENDMENTS

In the Claims:

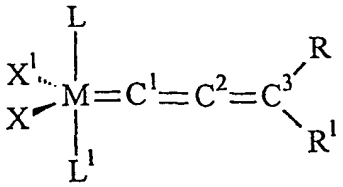
Please cancel claims 10, 15 and 16. Please amend claims 9, 11, 13, 14, 17, 23-28, and 32-34; and add new claims 39-78 as described below:

We have attached to this response a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made**".

Amended Claims

Please amend 9, 11, 13, 14, 17, 23-28, and 32-34 as follows:

9. (Amended) A catalytic complex of the formula:



wherein M is Os or Ru;

C^1 and C^2 are sp-hybridized carbons and C^3 is an sp^2 hybridized carbon, wherein either or both of C^1 and C^2 are optionally absent;

R and R^1 are independently selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_2-C_{20} alkoxycarbonyl, aryl, C_1-C_{20} carboxylate, C_1-C_{20} alkoxy, C_2-C_{20} alkenyloxy, C_2-C_{20} akylnyloxy, or aryloxy, each R and R^1 optionally being substituted with C_1-C_5 alkyl, halogen, C_1-C_6 alkoxy, or with a phenyl group substituted with halogen, C_1-C_5 alkyl or C_1-C_5 alkoxy;

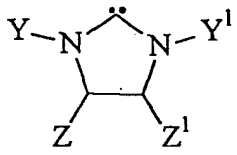
X and X^1 are independently selected from the group consisting of anionic ligands;

L is selected from the group consisting of phosphine, sulfonated phosphine, phosphite, phosphinite, phosphonite, ether, amine, amide, sulfoxide, carbonyl, nitrosyl, pyridine and thioether; and

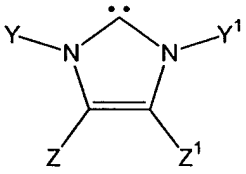
L^1 is a nucleophilic carbene.

11. (Amended) A catalytic complex according to claim 9, wherein L is a phosphine.

13. (Amended) A catalytic complex according to claim 9, wherein said nucleophilic carbene is of the formula:



or

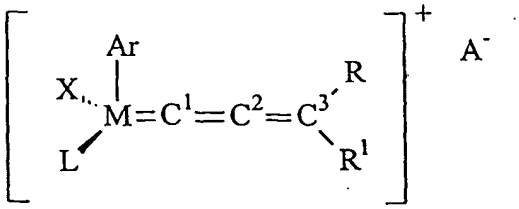


wherein

Y and Y^1 are independently selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_2-C_{20} alkoxycarbonyl, aryl, C_1-C_{20} carboxylate, C_1-C_{20} alkoxy, C_2-C_{20} alkenyloxy, C_2-C_{20} akylnyloxy, or aryloxy, each Y and Y^1 optionally being substituted with C_1-C_5 alkyl, halogen, C_1-C_6 alkoxy, or with a phenyl group substituted with halogen, C_1-C_5 alkyl or C_1-C_5 alkoxy and;

Z and Z^1 are independently selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_2-C_{20} alkoxycarbonyl, aryl, C_1-C_{20} carboxylate, C_1-C_{20} alkoxy, C_2-C_{20} alkenyloxy, C_2-C_{20} akylnyloxy, or aryloxy, each Z and Z^1 optionally being substituted with C_1-C_5 alkyl, halogen, C_1-C_6 alkoxy, or with a phenyl group substituted with halogen, C_1-C_5 alkyl or C_1-C_5 alkoxy.

14. (Amended) A catalytic complex of the formula:



wherein

C^1 and C^2 are sp-hybridized carbons and C^3 is an sp^2-hybridized carbon, wherein either or both of C^1 and C^2 are optionally absent;

M is selected from the group consisting of Os and Ru;

R and R^1 are independently selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_2-C_{20} alkoxycarbonyl, aryl, C_1-C_{20} carboxylate, C_1-C_{20} alkoxy, C_2-C_{20} alkenyloxy, C_2-C_{20} akylnyloxy, or aryloxy, each R and R^1 optionally being substituted with C_1-C_5 alkyl, halogen, C_1-C_6 alkoxy, or with a phenyl group substituted with halogen, C_1-C_5 alkyl or C_1-C_5 alkoxy;

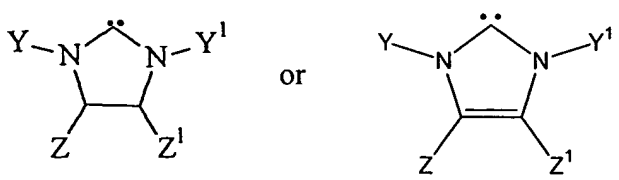
X is an anionic ligand; and

L is a nucleophilic carbene; and

Ar is an aryl substituent, bonded to M by an η^6 bond.

A^- is an inorganic anion or an organic anion.

17. (Amended) A catalytic complex according to claim 14, wherein said nucleophilic carbene is of the formula:

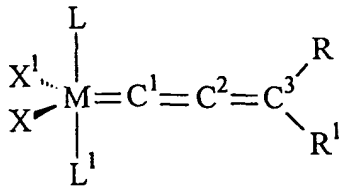


wherein

Y and Y^1 are independently selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_2-C_{20} alkoxycarbonyl, aryl, C_1-C_{20} carboxylate, C_1-C_{20} alkoxy, C_2-C_{20} alkenyloxy, C_2-C_{20} akylnyloxy, or aryloxy, each Y and Y^1 optionally being substituted with C_1-C_5 alkyl, halogen, C_1-C_6 alkoxy, or with a phenyl group substituted with halogen, C_1-C_5 alkyl or C_1-C_5 alkoxy and;

Z and Z^1 are independently selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_2-C_{20} alkoxycarbonyl, aryl, C_1-C_{20} carboxylate, C_1-C_{20} alkoxy, C_2-C_{20} alkenyloxy, C_2-C_{20} akylnyloxy, or aryloxy, each Z and Z^1 optionally being substituted with C_1-C_5 alkyl, halogen, C_1-C_6 alkoxy, or with a phenyl group substituted with halogen, C_1-C_5 alkyl or C_1-C_5 alkoxy.

23. (Amended) A method of performing ring closing metathesis, said method comprising contacting a diene with a catalytic complex under conditions appropriate, and for a time sufficient to produce a cyclic alkene, wherein the catalytic complex has the formula:



wherein M is Os or Ru;

C^1 and C^2 are sp-hybridized carbons and C^3 is a sp^2-hybridized carbon, wherein either or both of C^1 and C^2 are optionally absent;

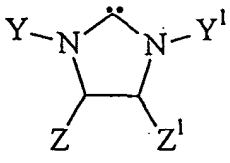
R and R^1 are independently selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_2-C_{20} alkoxycarbonyl, aryl, C_1-C_{20} carboxylate, C_1-C_{20} alkoxy, C_2-C_{20} alkenyloxy, C_2-C_{20} akylnyloxy, or aryloxy, each R and R' optionally being substituted with C_1-C_5 alkyl, halogen, C_1-C_6 alkoxy, or with a phenyl group substituted with halogen, C_1-C_5 alkyl or C_1-C_5 alkoxy;

X and X^1 are independently selected from the group consisting of anionic ligands;

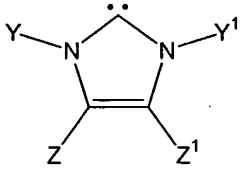
L is selected from the group consisting of phosphine, sulfonated phosphine, phosphite, phosphinite, phosphonite, ether, amine, amide, sulfoxide, carbonyl, nitrosyl, pyridine and thioether; and

L^1 is a nucleophilic carbene.

24. (Amended) The method of claim 23, wherein the nucleophilic carbene has the formula:



or

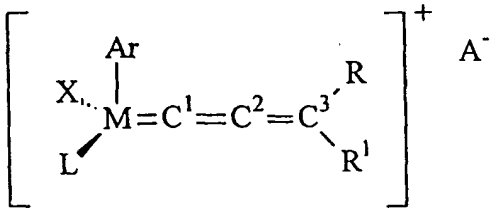


wherein

Y and Y^1 are independently selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_2-C_{20} alkoxycarbonyl, aryl, C_1-C_{20} carboxylate, C_1-C_{20} alkoxy, C_2-C_{20} alkenyloxy, C_2-C_{20} akylnyloxy, or aryloxy, each Y and Y^1 optionally being substituted with C_1-C_5 alkyl, halogen, C_1-C_6 alkoxy, or with a phenyl group substituted with halogen, C_1-C_5 alkyl or C_1-C_5 alkoxy and;

Z and Z^1 are independently selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_2-C_{20} alkoxycarbonyl, aryl, C_1-C_{20} carboxylate, C_1-C_{20} alkoxy, C_2-C_{20} alkenyloxy, C_2-C_{20} akylnyloxy, or aryloxy, each Z and Z^1 optionally being substituted with C_1-C_5 alkyl, halogen, C_1-C_6 alkoxy, or with a phenyl group substituted with halogen, C_1-C_5 alkyl or C_1-C_5 alkoxy.

25. (Amended) A method of performing ring closing metathesis, said method comprising contacting a diene with a catalytic complex under conditions appropriate, and for a time sufficient to produce a cyclic alkene, wherein the catalytic complex has the formula:



wherein

C^1 and C^2 are sp-hybridized carbons and C^3 is an sp^2-hybridized carbon, wherein either or both of C^1 and C^2 are optionally absent;

M is selected from the group consisting of Os and Ru;

R and R^1 are independently selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_2-C_{20} alkoxycarbonyl, aryl, C_1-C_{20} carboxylate, C_1-C_{20} alkoxy, C_2-C_{20} alkenyloxy, C_2-C_{20} akylnyloxy, or aryloxy, each R and R^1 optionally being substituted with C_1-C_5 alkyl, halogen, C_1-C_6 alkoxy, or with a phenyl group substituted with halogen, C_1-C_5 alkyl or C_1-C_5 alkoxy;

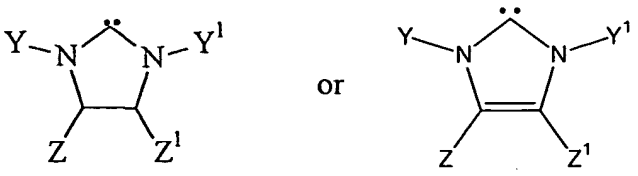
X is an anionic ligand; and

L is a nucleophilic carbene; and

Ar is an aryl substituent, bonded to M by an η^6 bond

A^- is an inorganic anion or an organic anion.

26. (Amended) The method of claim 25, wherein the nucleophilic carbene has the formula:



wherein

Y and Y^1 are independently selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_2-C_{20} alkoxycarbonyl, aryl, C_1-C_{20} carboxylate, C_1-C_{20} alkoxy, C_2-C_{20} alkenyloxy, C_2-C_{20} akylnyloxy, or aryloxy, each Y and Y^1 optionally being substituted with C_1-C_5 alkyl, halogen, C_1-C_6 alkoxy, or with a phenyl group substituted with halogen, C_1-C_5 alkyl or C_1-C_5 alkoxy and;

Z and Z^1 are independently selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_2-C_{20} alkoxycarbonyl, aryl, C_1-C_{20} carboxylate, C_1-C_{20} alkoxy, C_2-C_{20} alkenyloxy, C_2-C_{20} akylnyloxy, or aryloxy, each Z and Z^1 optionally being substituted with C_1-C_5 alkyl, halogen, C_1-C_6 alkoxy, or with a phenyl group substituted with halogen, C_1-C_5 alkyl or C_1-C_5 alkoxy.

27. (Amended) The catalytic complex according to claim 9, wherein X and X^1 are independently selected from the group consisting of halide, carboxylate, alkoxy, aryloxy, and alkyl sulfonate.

28. (Amended) The catalytic complex according to claim 27, wherein X and X^1 are both chloride.

32. (Amended) The catalytic complex according to claim 9, wherein the complex is linked to a solid support by means of a link between the nucleophilic carbene and said solid support.

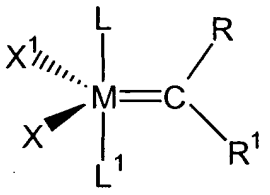
33. (Amended) The catalytic complex according to claim 14, wherein X is selected from the group consisting of halide, carboxylate, alkoxy, aryloxy, and alkyl sulfonate.

34. (Amended) The catalytic complex according to claim 33, wherein X is chloride.

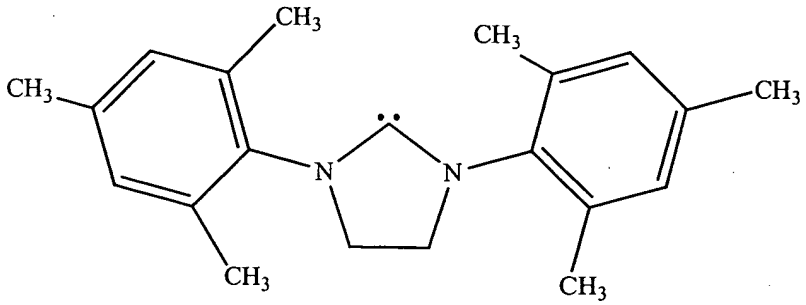
Added Claims

Please add new claims 39-78 as follows:

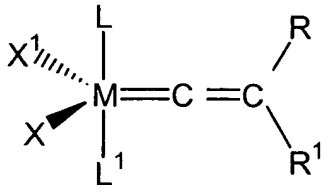
39. (New) The catalytic complex according to claim 9, wherein the catalytic complex has the formula:



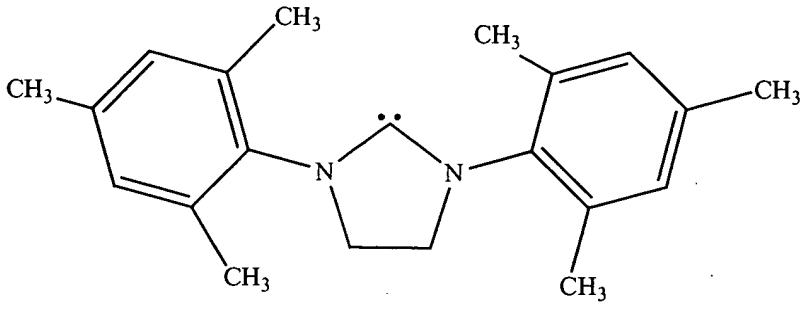
40. (New) The catalytic complex according to claim 39, wherein L is -P(cyclohexyl)$_3$, -P(cyclopentyl)$_3$, or -PPh$_3$; and L^1 is



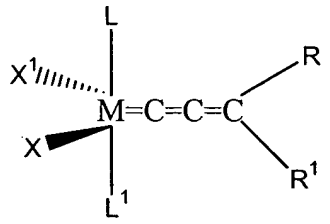
41. (New) The catalytic complex according to claim 9, wherein the catalytic complex has the formula:



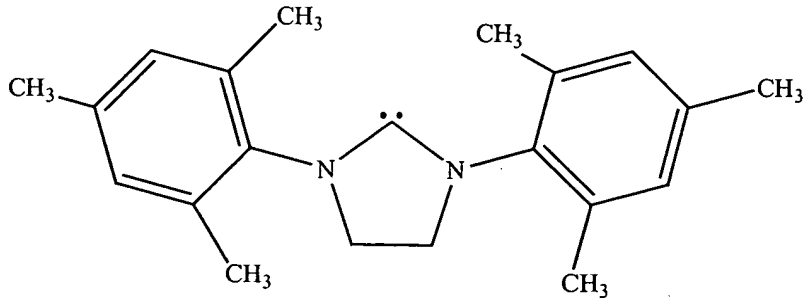
42. (New) The catalytic complex according to claim 41, wherein L is -P(cyclohexyl)$_3$, -P(cyclopentyl)$_3$, or -PPh$_3$; and L^1 is



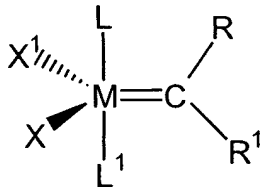
43. (New) The catalytic complex according to claim 9, wherein the catalytic complex has the formula:



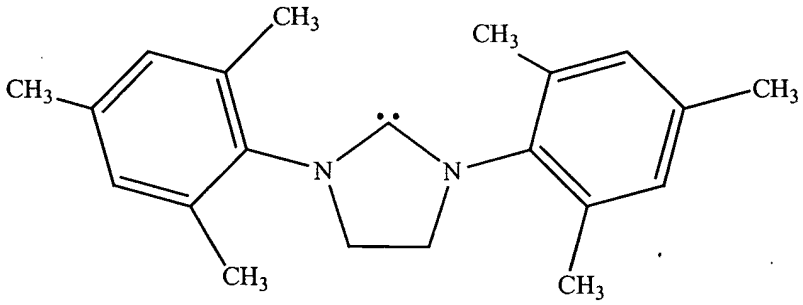
44. (New) The catalytic complex according to claim 43, wherein L is -P(cyclohexyl)$_3$, -P(cyclopentyl)$_3$, or -PPh$_3$; and L^1 is



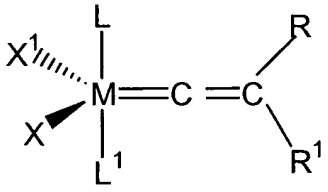
45. (New) The method according to claim 23, wherein the catalytic complex has the formula:



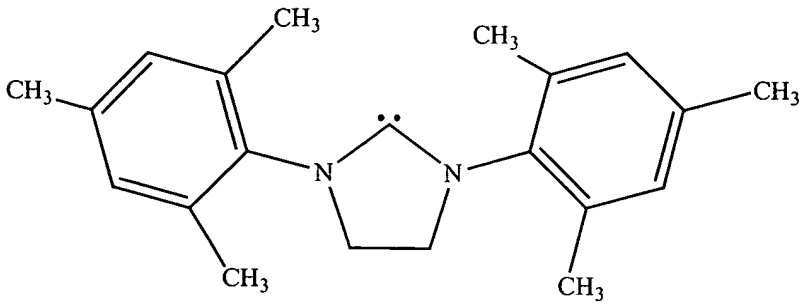
46. (New) The method according to claim 45, wherein L is -P(cyclohexyl)$_3$, -P(cyclopentyl)$_3$, or -PPh$_3$; and L^1 is



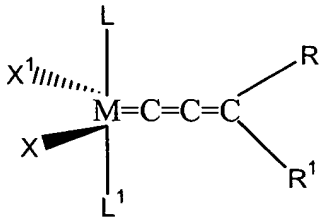
47. (New) The method according to claim 23, wherein the catalytic complex has the formula:



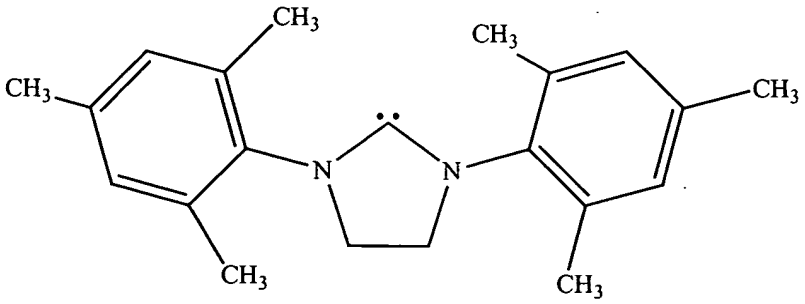
48. (New) The method according to claim 47, wherein L is -P(cyclohexyl)$_3$, -P(cyclopentyl)$_3$, or -PPh$_3$; and L^1 is



49. (New) The method according to claim 23, wherein the catalytic complex has the formula:



50. (New) The method according to claim 49, wherein L is -P(cyclohexyl)$_3$, -P(cyclopentyl)$_3$, or -PPh$_3$; and L^1 is



51. (New) A catalytic complex according to claim 13, wherein Y and Y^1 are both 2,4,6-trimethylphenyl and Z and Z^1 are both hydrogen.

52. (New) A catalytic complex according to claim 13, wherein Y and Y^1 are both 2,6-diisopropylphenyl and Z and Z^1 are both hydrogen.

53. (New) A catalytic complex according to claim 17, wherein Y and Y^1 are both 2,4,6-trimethylphenyl and Z and Z^1 are both hydrogen.

54. (New) The catalytic complex according to claim 17, wherein Y and Y^1 are both 2,6-diisopropylphenyl and Z and Z^1 are both hydrogen.

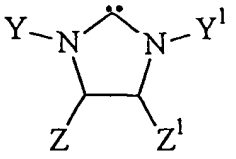
55. (New) The method according to claim 24, wherein Y and Y^1 are both 2,4,6-trimethylphenyl and Z and Z^1 are both hydrogen.

56. (New) The method according to claim 24, wherein Y and Y^1 are both 2,6-diisopropylphenyl and Z and Z^1 are both hydrogen.

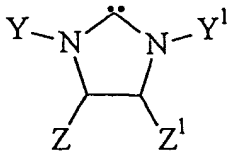
57. (New) The method according to claim 26, wherein Y and Y^1 are both 2,4,6-trimethylphenyl and Z and Z^1 are both hydrogen.

58. (New) The method according to claim 26, wherein Y and Y^1 are both 2,6-diisopropylphenyl and Z and Z^1 are both hydrogen.

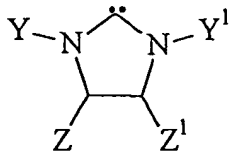
59. (New) A catalytic complex according to claim 13, wherein said nucleophilic carbene is of the formula:



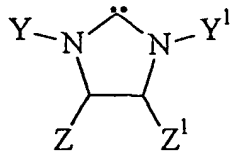
60. (New) A catalytic complex according to claim 17, wherein said nucleophilic carbene is of the formula:



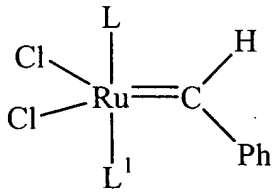
61. (New) The method of claim 24, wherein the nucleophilic carbene has the formula:.



62. (New) The method of claim 26, wherein the nucleophilic carbene has the formula:



63. (New) A catalytic complex of the formula:

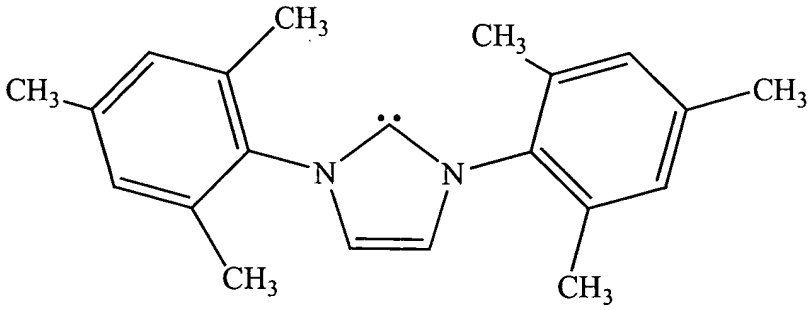


wherein

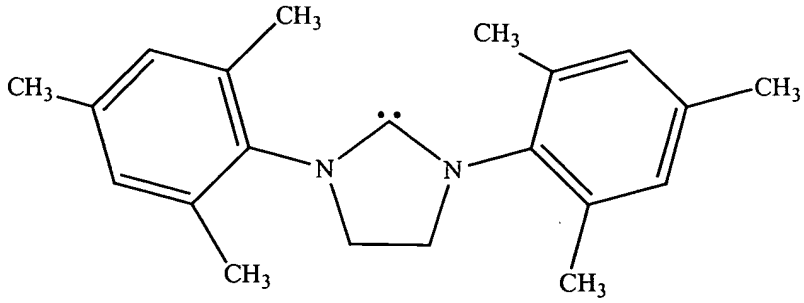
L is -P(phenyl)$_3$, -P(cyclohexyl)$_3$, or -P(cyclopentyl)$_3$; and

L^1 is a nucleophilic carbene.

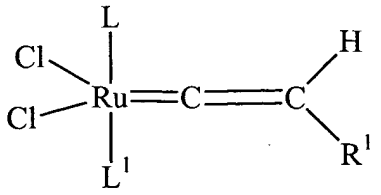
64. (New) The catalytic complex of claim 63, wherein L^1 is



65. (New) The catalytic complex of claim 63, wherein L^1 is



66. (New) A catalytic complex of the formula

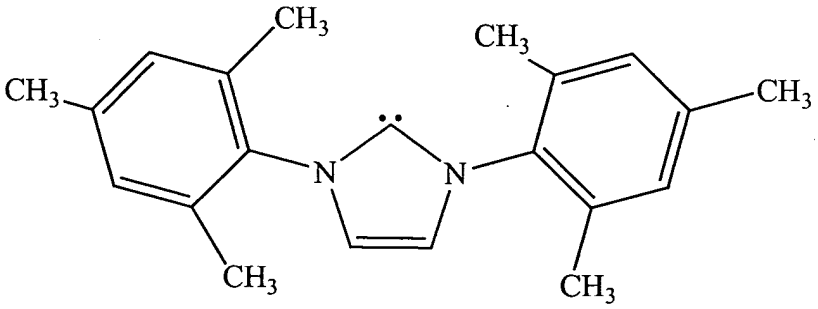


wherein L is -P(phenyl)$_3$, -P(cyclohexyl)$_3$, or -P(cyclopentyl)$_3$; L^1 is a nucleophilic carbene; and R^1 is C_1-C_{20} alkyl.

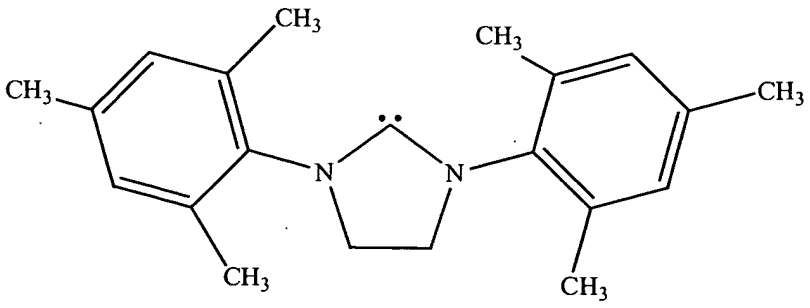
67. (New) The catalytic complex of claim 66, wherein R^1 is C_1-C_4 alkyl.

68. (New) The catalytic complex of claim 67, wherein R^1 is tert-butyl.

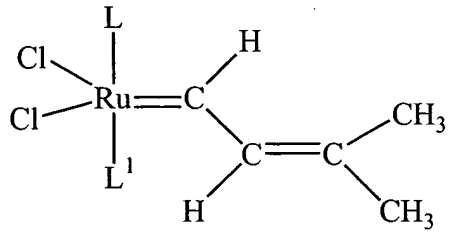
69. (New) The catalytic complex of claim 66, wherein L^1 is



70. (New) The catalytic complex of claim 66, wherein L^1 is



71. (New) A catalytic complex of the formula:

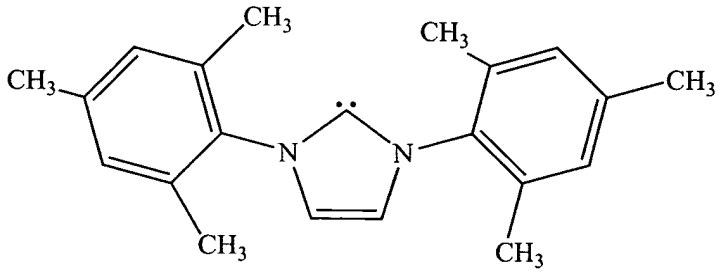


wherein

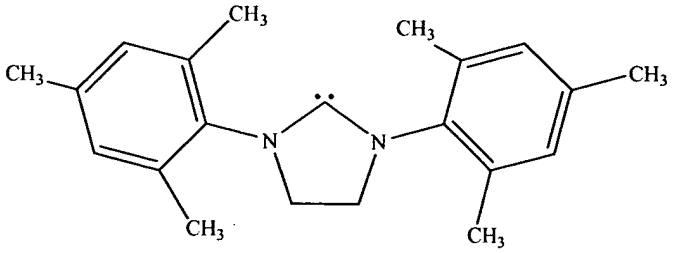
L is -P(phenyl)3, -P(cyclohexyl)3, or -P(cyclopentyl)3; and

L1 is a nucleophilic carbene.

72. (New) The catalytic complex of claim 71, wherein L^1 is



73. (New) The catalytic complex of claim 71, wherein L^1 is



74. (New) A method for synthesizing a polymer material, the method comprising contacting a monomer composition with the catalytic complex of claim 9.

75. (New) The method of claim 74, wherein the monomer composition comprises a plurality of olefin molecules.

76. (New) The method of claim 75, wherein the olefin molecules are cyclic olefin molecules.

77. (New) The method of claim 23, wherein the diene is a diterminal diene.

78. (New) The method of claim 25, wherein the diene is a diterminal diene.